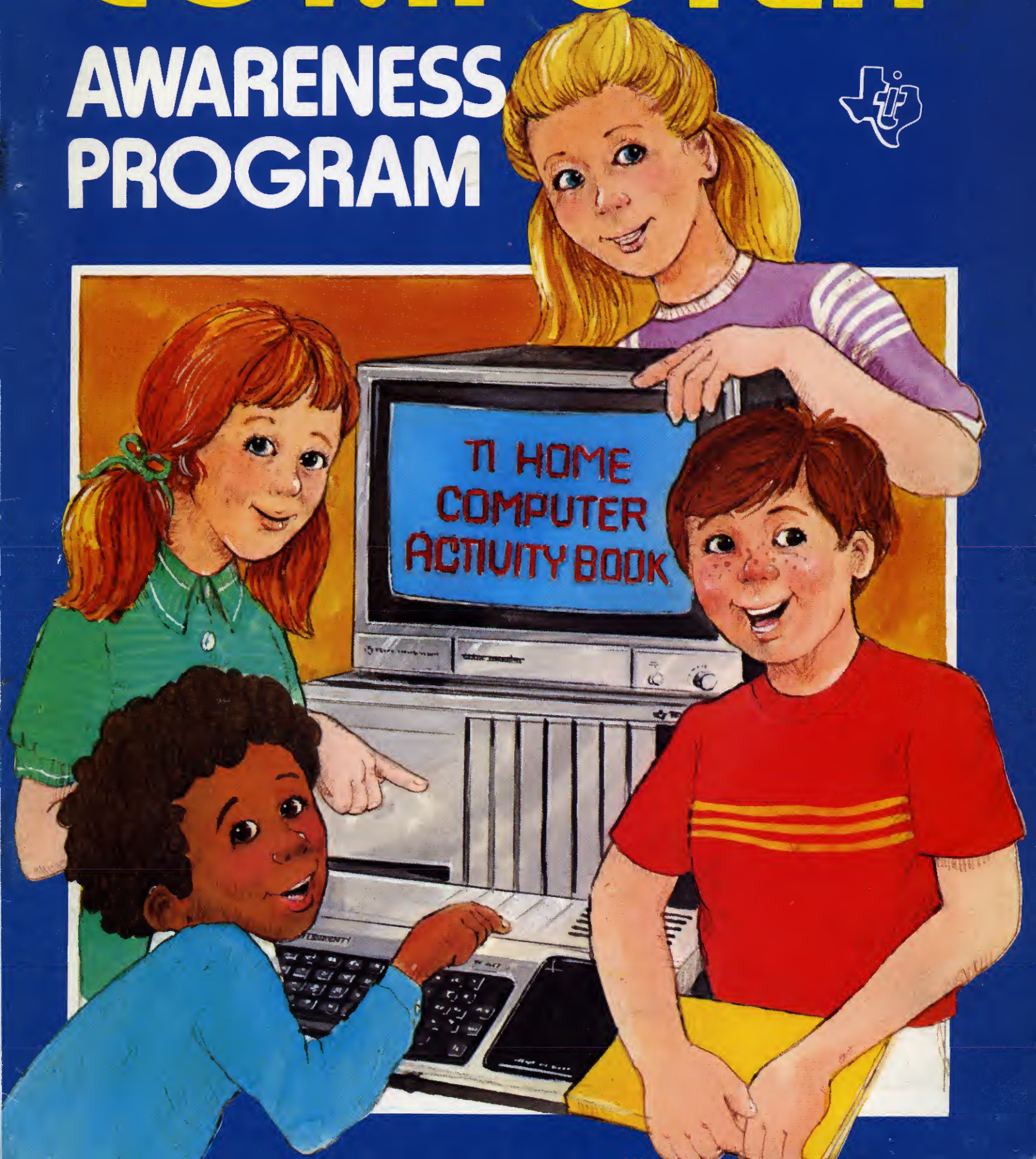
COMPUTER AWARENESS PROGRAM



This book was developed for the
TI Computer Advantage Club by the staff
of the Texas Instruments Learning Center
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Texas Instruments invented the integrated circuit,
the microprocessor, and the microcomputer.
Being first is our tradition.

COMPUTER AWARENESS PROGRAM

TO _____
(your name)

FROM The people of TEXAS INSTRUMENTS

We want you to enjoy. . .

Discovering computers

Learning how computers work

Seeing what computers can do

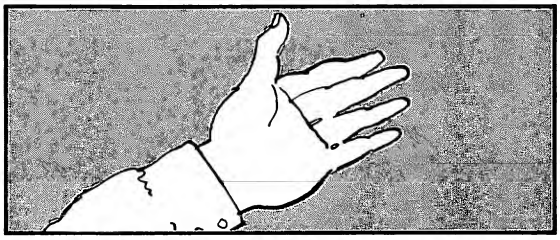
Attending the Computer Awareness Program

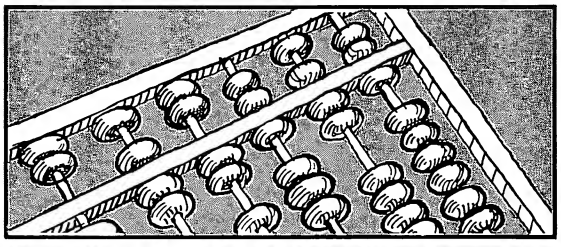
Using your TI Home Computer

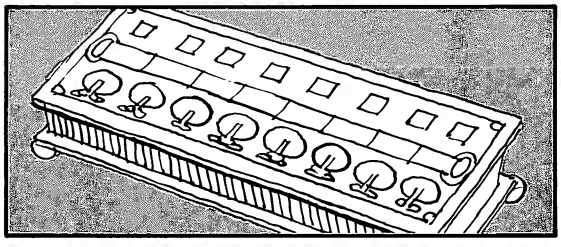
Activity Book

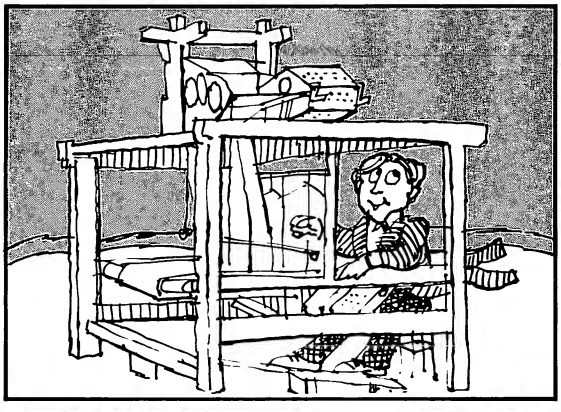
HAVE FUN!

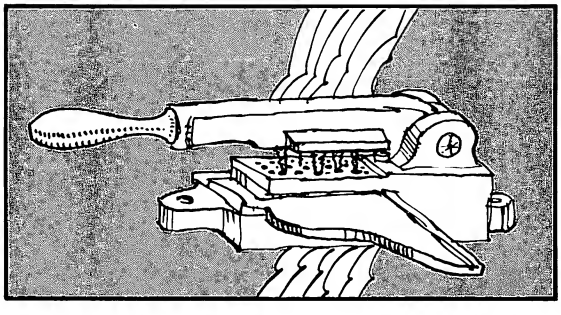
COMPUTERS – PAST











Let's take a short historical trip through the land of computers.

HUMAN HAND

The wonderful human hand was the very first calculator. Soon, people began to count by using slash marks or objects such as stones or sticks.

ABACUS

The abacus was the first known calculating machine. The Chinese abacus, called a "suan-pan," was developed around 3,000 B.C. The abacus is still used by many people of the world today.

PASCAL'S MACHINE

Blaise Pascal, philosopher and mathematician, invented and built his first computing machine in 1642. It could add and subtract.

JACQUARD LOOM

In 1801, Joseph Jacquard invented a weaving loom that used punched cards. The way that the cards were punched controlled the design of the woven cloth.

In the 1820's and 30's, Charles Babbage designed steam-driven calculating devices with all the major parts of a modern computer. But the technology available in the 1800's wasn't advanced enough to build the engines.

HOLLERITH PUNCH MACHINE

Hermann Hollerith and John Shaw Billings invented a machine that used punched cards for counting the census data. Hollerith's machine was used for the 1890 U.S. census.

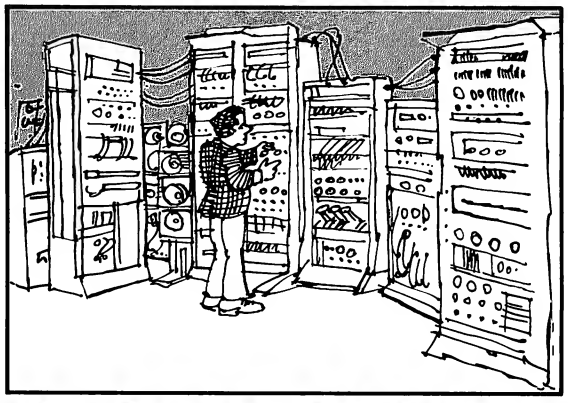
TO PRESENT

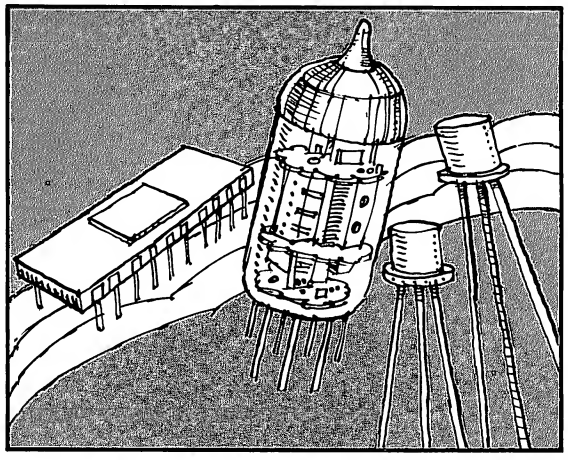
MARK I

In 1937, Howard H. Aiken of Harvard University began work on the Automatic Sequence Controlled Calculator. This computer performed three additions every second and was called Mark I. By 1959, the Mark I was outdated.

ENIAC (Electronic Numerical Integrator and Computer) was built at the University of Pennsylvania in 1943. This general-purpose computer was hundreds of times faster than any earlier machine.

UNIVAC (UNIVersal Automatic Computer) was the first computer produced for sale. In 1951, it was installed at the U.S. Bureau of Census.

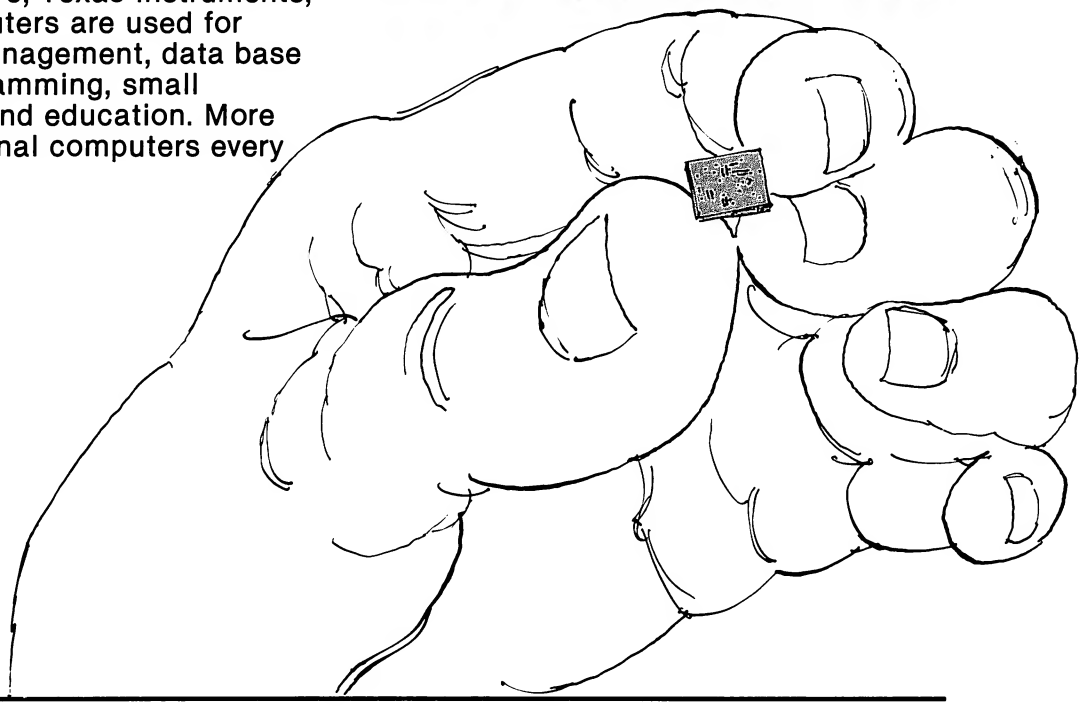




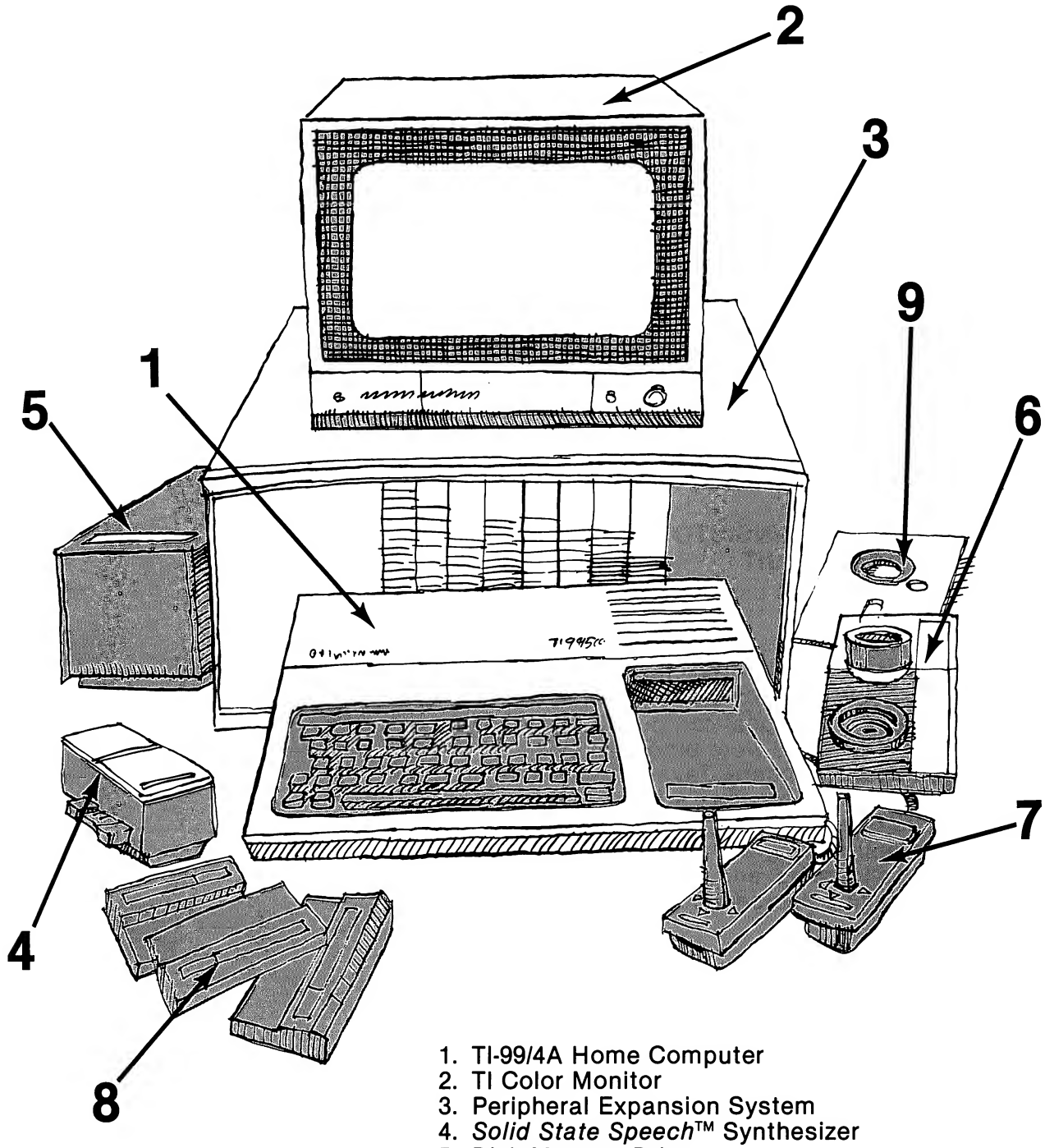
VACUUM TUBE/TRANSISTOR/ INTEGRATED CIRCUIT

The vacuum tube was used in the earliest electronic computers. The next computers used transistors. In the 1960's, computers used integrated circuits (ICs). Today's computers use ICs less than ¼ inch in size.

Some of the first personal computers introduced in the 1970's were produced by Radio Shack, Commodore, Texas Instruments, and Apple. These computers are used for entertainment, home management, data base access, computer programming, small business applications, and education. More people are buying personal computers every year.



COMPUTER PARTS



1. TI-99/4A Home Computer
2. TI Color Monitor
3. Peripheral Expansion System
4. *Solid State Speech*™ Synthesizer
5. Disk Memory Drive
6. TI Telephone Coupler (Modem)
7. Wired Remote Controllers
8. *Solid State Software*™ Command Modules
9. Diskette

COMPUTER MATCH-UP

Show how well you know the parts of the computer system. Fill in the blank beside the computer part with the letter of the correct definition.

1. ____ Peripheral Expansion System
2. ____ TI Telephone Coupler (Modem)
3. ____ Diskette
4. ____ TI-99/4A Home Computer
5. ____ *Solid State Software*™ Command Modules
6. ____ TI Color Monitor
7. ____ Wired Remote Controllers
8. ____ Disk Memory Drive
9. ____ *Solid State Speech*™ Synthesizer

a. Sends information from your Home Computer through a telephone.

b. A TV-like screen.

c. A small accessory that gives the computer a voice.

d. Programs that you plug into the computer console.

e. Set of joysticks.

f. A box which can hold up to seven separate accessories for the computer.

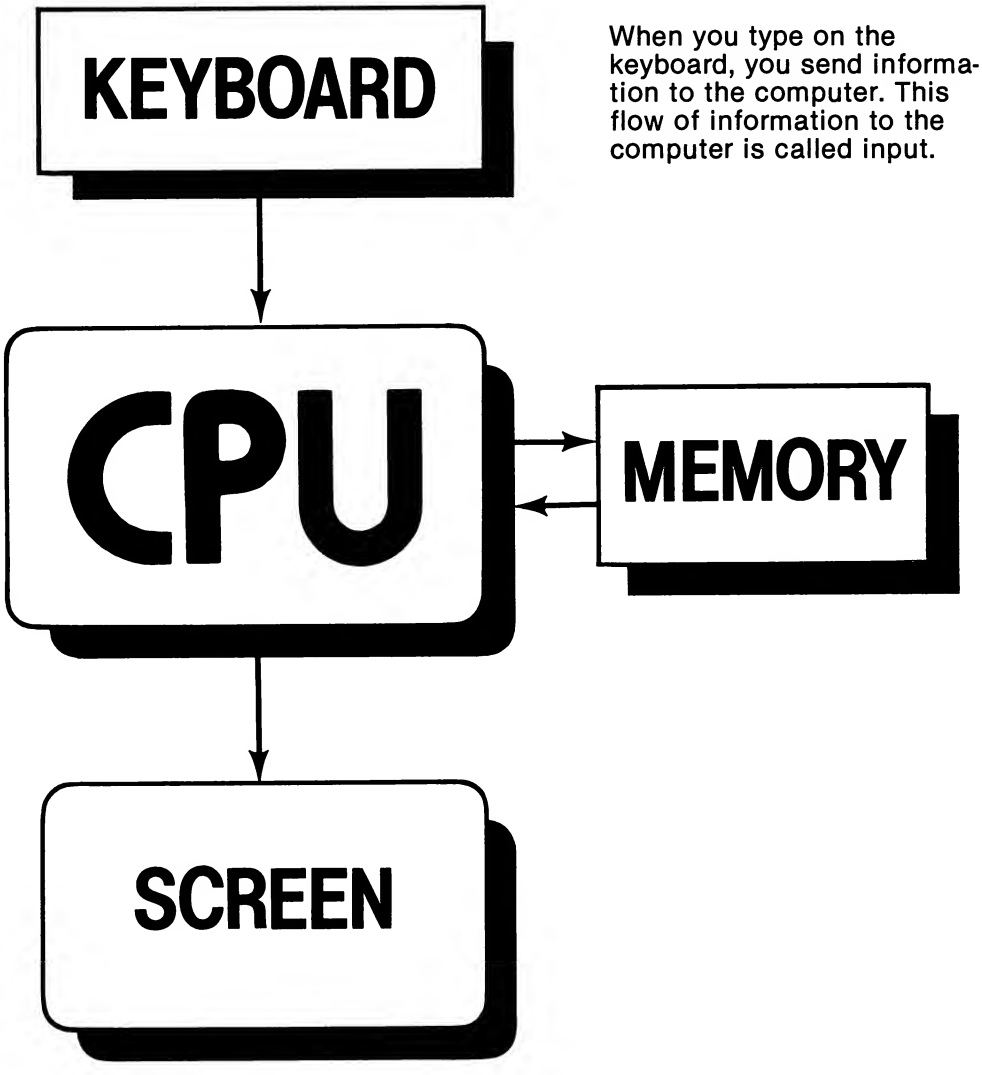
g. A typewriter-like console that allows you to enter, store, and manipulate information.

h. A record-like item that is inserted into a disk drive and used to store information.

i. A device which reads and writes data on a diskette.

HOW DOES A COMPUTER WORK?

Most computers have the same main parts. As you read, follow the diagram to understand how these parts work together.

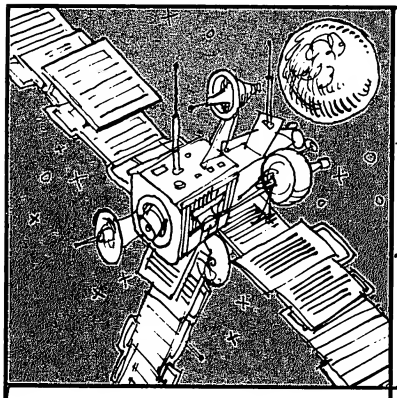


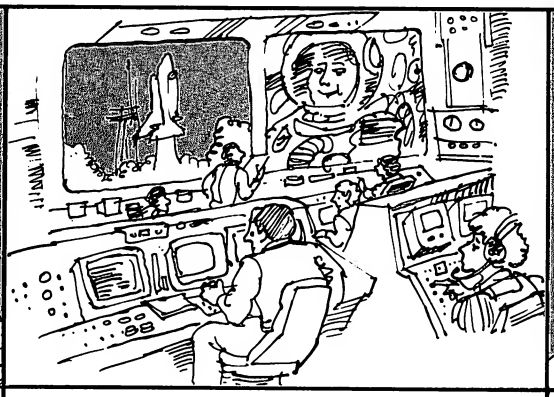
When you type on the keyboard, you send information to the computer. This flow of information to the computer is called input.

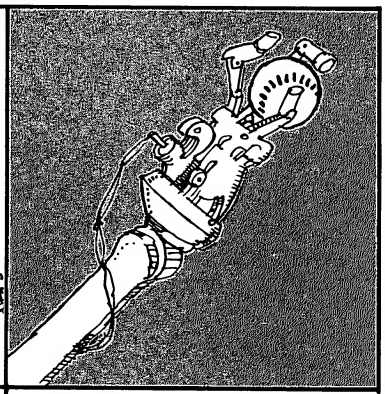
The input goes to the central processing unit (CPU). The CPU calculates, sorts and compares information. It can also store information in the memory for use later.

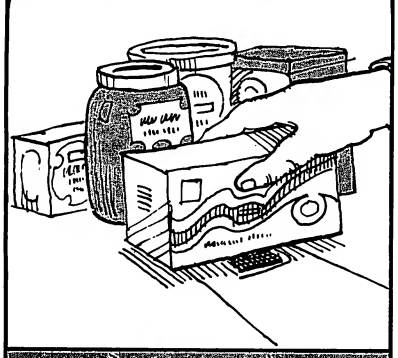
The flow of information from the computer is called output. You see the output on the screen in the form of words and pictures. Some output can also be printed when you attach a printer to the computer.

PLACES COMPUTERS ARE USED





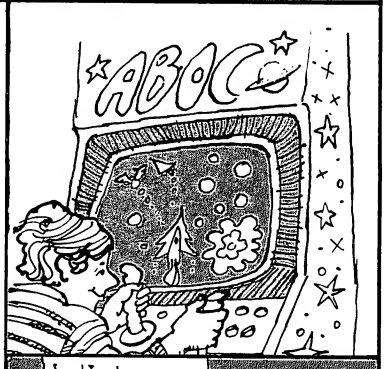


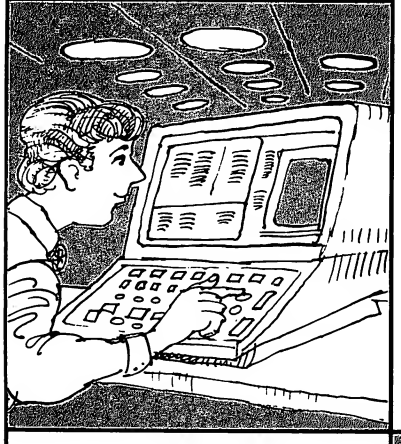


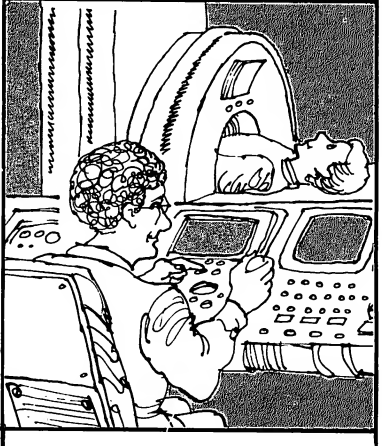
Computers are used
everywhere.

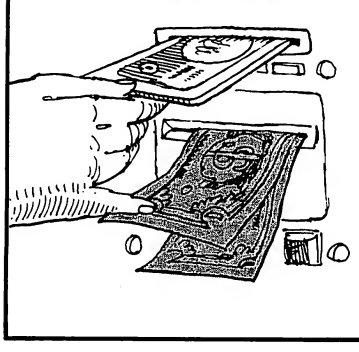
Here are some places
that you can find computers.

Outer space
NASA Space Center
Airports • Factories
Offices • Game Arcades
Hospitals • Stores
Banks • Schools
Homes

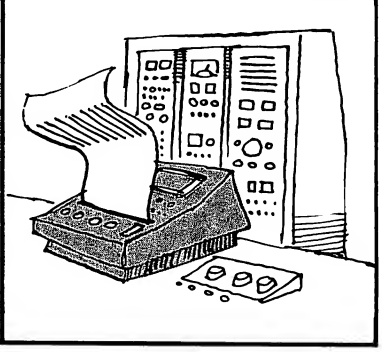








**Can you think
of more places
computers are used?**



KEY IT IN!

Type your name, and you'll see that everything you type appears on the screen. When you have finished typing your name, press the ENTER key near the center right of the keyboard.

Now type in the following letters and numbers, and press ENTER after you type each line. Can you figure out how to put a space between words and how to type the period and the slanted line?

HELLO THERE.
I AM THE
TI-99/4A
COMPUTER.

Look at the top row of keys on your keyboard. All of the numbers are on this row. The letters of the alphabet are on the other rows. The keys that don't have letters on them have numbers, punctuation marks, or other special symbols. These keys have two symbols on them.

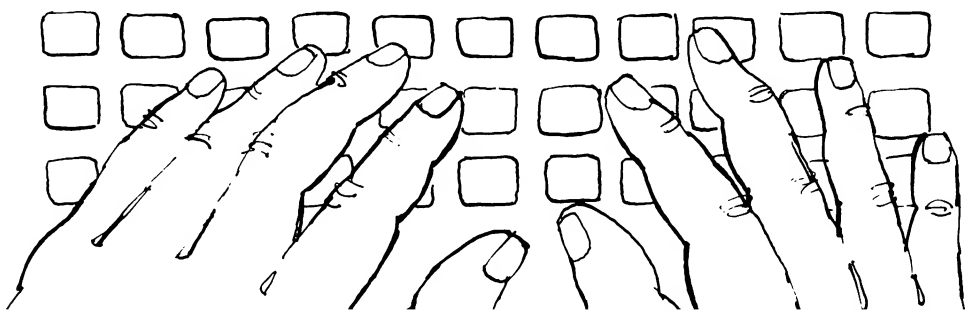
The SHIFT keys, located near the bottom corners of the keyboard, help you type these special symbols. If you hold a SHIFT key down while you press one of these keys, the upper symbol appears on the screen; if you don't hold a SHIFT key down, then you see the lower symbol. See if you can type the following.

1 + 2 = 3
$64.98

By now, you've probably noticed that some keys not only have one or two symbols on TOP of the key, but even have a character on the FRONT of the key. The function key, located at the bottom right of the keyboard helps you type these symbols. If you want to type these symbols, hold down the FCTN key while you press the key you want. (FCTN is an abbreviation for "function.") Try these examples.

WHAT IS YOUR NAME?

WON'T YOU SAY "HELLO"?



KEY IT IN!

The FCTN key can also be used in combination with certain keys to perform special functions. For example, if you hold down the FCTN key and press the key that has an arrow pointing to the right, the cursor moves to the right. Try it! What happens when you hold FCTN down and press the key that has the arrow that points to the left?

The FCTN key can also be used with the top row of keys. You remember that those keys let you type numbers or special symbols by holding SHIFT down. If you look at the "overlay strip" above the top row of keys, you notice words like ERASE and REDO. Type in a few letters, then hold the FCTN key down and press the key under the word ERASE. What happens?

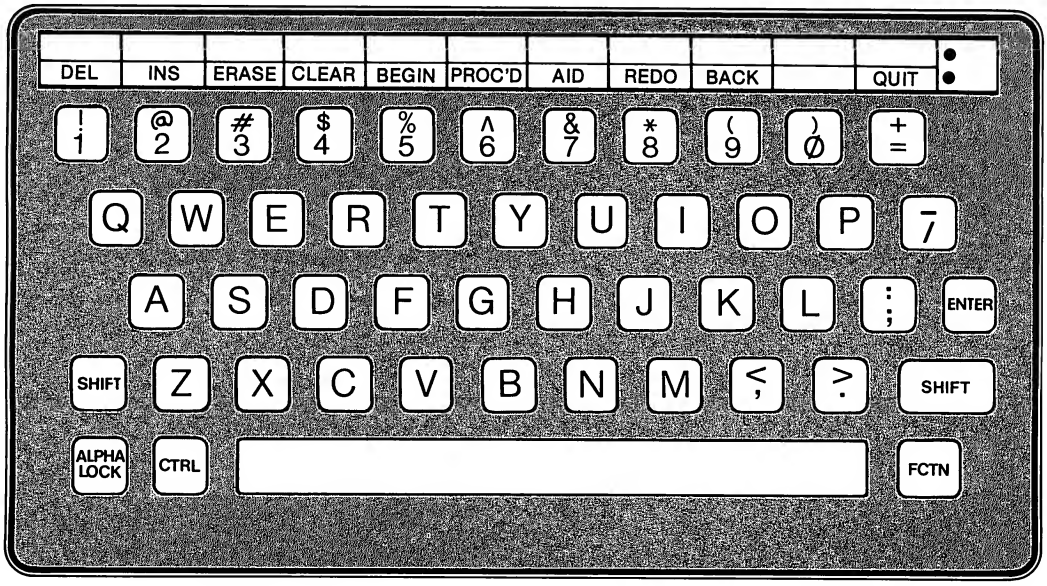
Special Function Keys

To ERASE press FCTN 3.

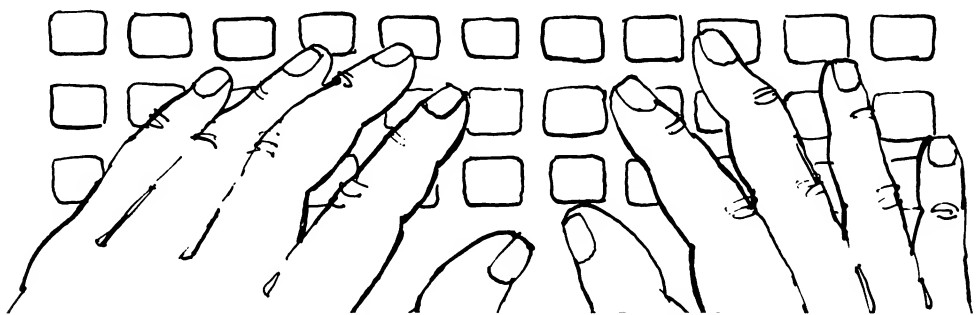
To QUIT and return to the master title screen, press FCTN =.

To move to the left (←) press FCTN S.
To move to the right (→) press FCTN D.

Press ENTER to enter something into the computer.

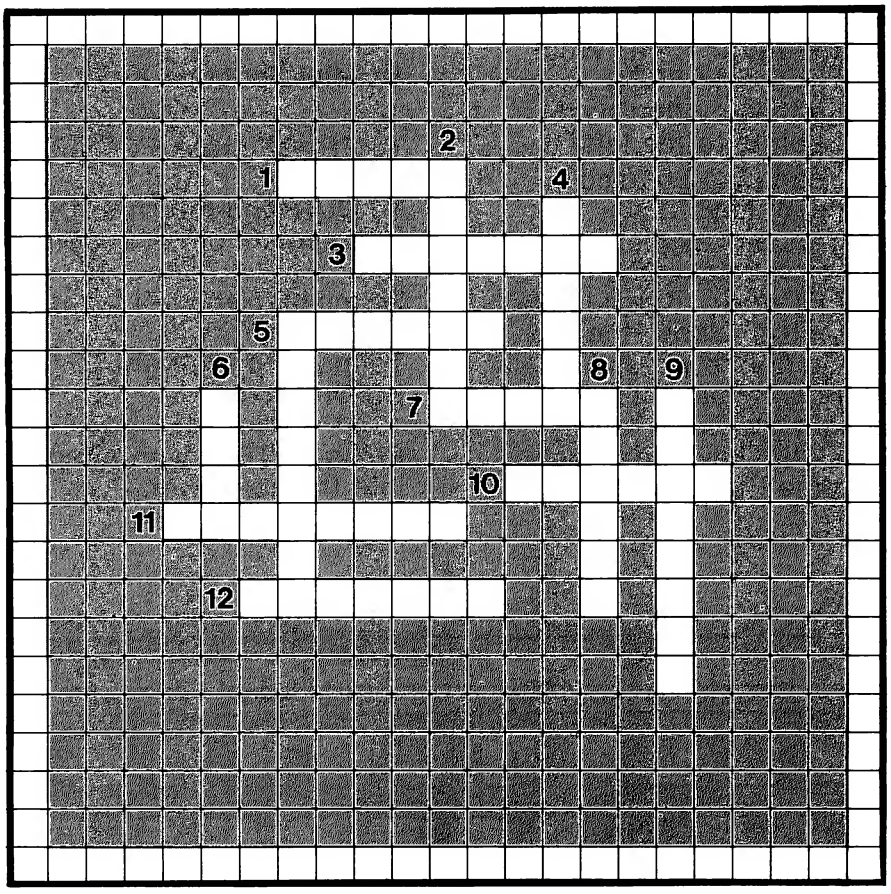


A Tour of the Keyboard



COMPUTER CROSSWORD

Here is a puzzle that contains many of the computer terms you have learned. See if you can complete the puzzle.



ACROSS

1. Beginner's All-purpose Symbolic Instruction Code — a computer language.
3. The unit that contains the video screen.
5. A flashing rectangle on the screen.
7. Pressing this key sends the information to the computer.
10. Place in computer where information is stored.
11. Another word for computer programs.
12. A list of instructions for the computer to follow.

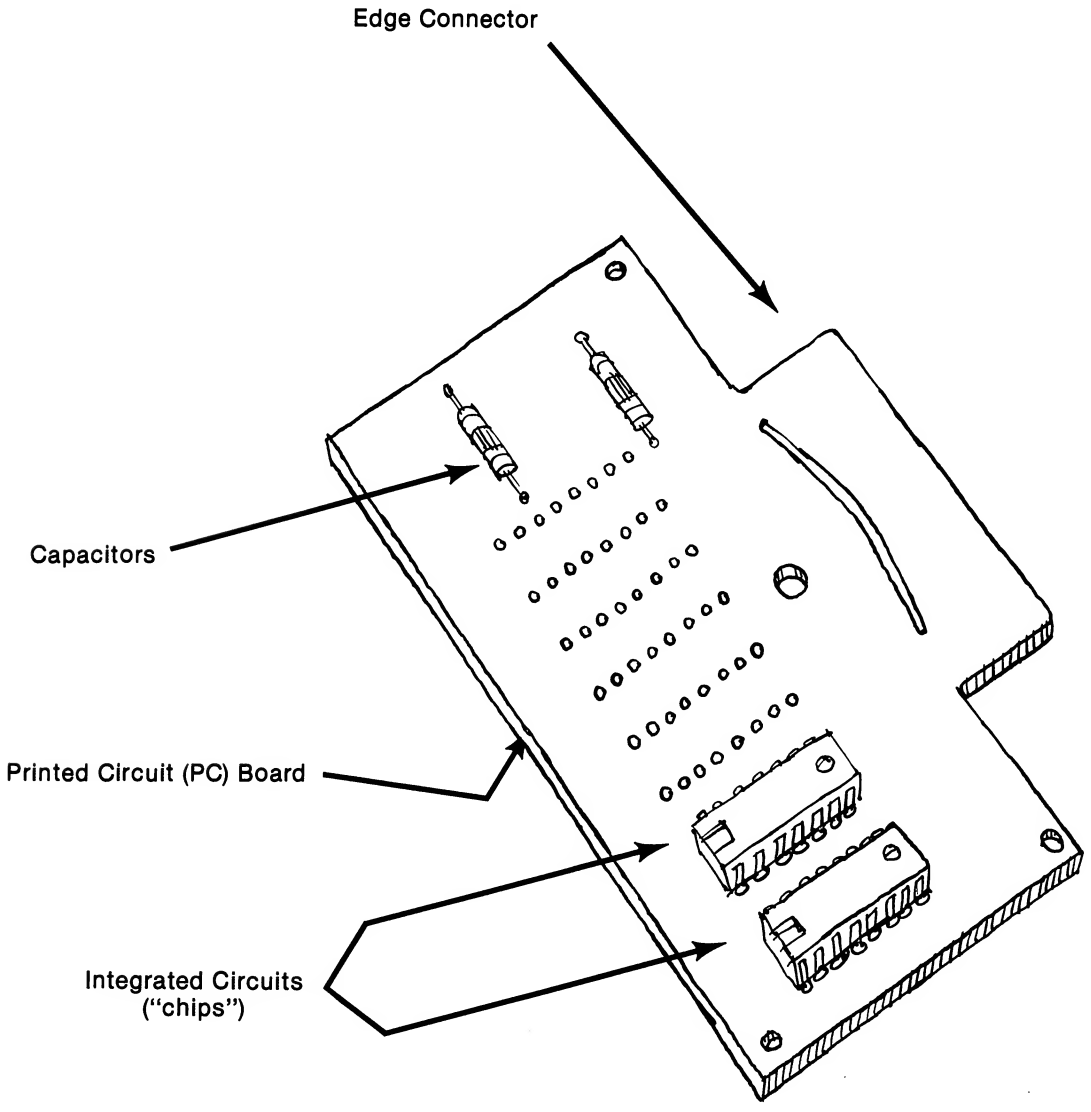
DOWN

2. The unit that contains the computer.
4. A cartridge that is preprogrammed and can be added to the computer.
5. The TI-99/4A Home _____.
6. A computer language for children.
8. Wired _____ Controllers.
9. A term, not software, used to refer to the computer equipment and its accessories.

WHAT IS A COMMAND MODULE?

A Command Module is a special way to program your computer. A program is a list of instructions that tells the computer what to do. Programs are called the software for a computer. Command Modules are only one form of software.

When you insert the Command Module into the computer, the instructions stored inside it can be used by the computer. These instructions are stored on tiny electronic devices called integrated circuits. These circuits are also called chips. The drawing below shows the inside of a Command Module.



DESIGN A MODULE

The programs for the Command Modules are written by programmers. Before they write their programs, they first have to *design* the modules.

Pretend you are a programmer. What kind of Command Module can you design? Does it help other people learn or practice a skill—like spelling or arithmetic? Is it a game people can play—like Munch Man or Hunt the Wumpus?

Here's a list to help you design your module:

My module:

Teaches _____ Entertains _____

The title of my module is:

_____

My module has:

Speech _____ Music _____ Graphics _____

Here's a description of my module:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

GRAPHICS FOR MY MODULE

Here's a spot for you to draw the characters in your Command Module.

SEARCH FOR THE MODULE

W I T H L N S C A R W A R S N P I E R C L K
E V H S Y U S R P W E A C O G O L I T A E T
R E E R T M P U R N A D I V I S I O N I S M
U R A E Y B U E P E U T O Y L T C Q M D Y U
T R T D E E H S R M A F O O T B A L L L B N
N I T A S R S F R C U S G N I E Z A M A L C
E A A V E M B U I R L W J N C N A M G N A H
V G C N O A D L G P K P E L I L L M P L S M
D S K I B G P L P A L I B H M D C B M A T A
A D D I T I O N A N D S U B T R A C T I O N
X Y M T T C A R E C H N O V J T U E N E A P
M R Z L M U S I C M A K E R I L N U R E D D
L H U S T L E E E Z T H A Y W N S U P S O C
N M O A O H N O Z E R O Z A P U L O H R D L

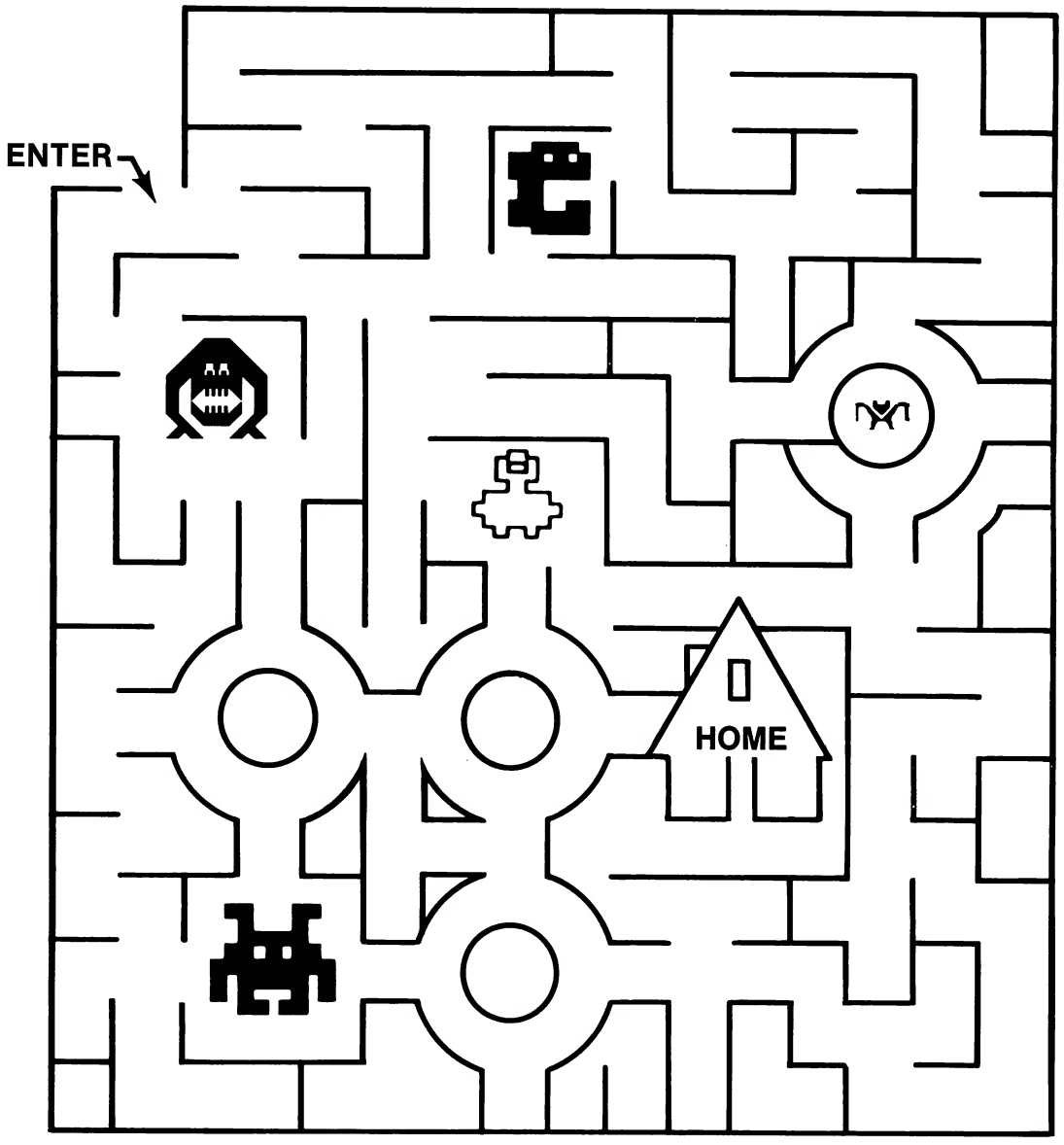
The following list gives you the titles of TI Home Computer Command Modules hidden in the puzzle above. The titles in the puzzle may be written horizontally, vertically or diagonally. They may be spelled forward or backward. Find and circle each title in the puzzle. The first one is done for you.

Addition and Subtraction
Adventure
Amazeing
Blasto*
Car Wars
Division
Football
Hangman*
Hunt the Wumpus
Hustle*
Multiplication
Munch Man
Music Maker
Number Magic
Reading Fun
The Attack*
TI Invaders
TI LOGO
Yahtzee*
ZeroZap*

*Trademark of Milton Bradley Company

A-MAZE-ING

Can you find your way home? It's hard to pass through this land of strange creatures and stranger happenings. Watch out for the Terrible TI Invaders, the Madcap Munch Man, the Bad Bats, the Slippery Slime Pits, the Horrible Hoonos, and the Weirdo Wumpus. Find the secret passage and you'll be home free.



COMPUTER LANGUAGE?

When people ask you to do something, they tell you or give you instructions in a language that you understand. Talking to a computer is the same. To tell a computer what to do, you must write a program (a list of instructions). These instructions must be written in a language that the computer understands.

Just as the French language is different from the English language, there are different programming languages that computers understand. Each of these programming languages has different vocabularies and different "grammar" rules. Many of the words used in computer languages are ones that you use everyday, so it's easy for you to learn a computer language.

Below are examples of programs written in two different languages — TI LOGO and TI BASIC.

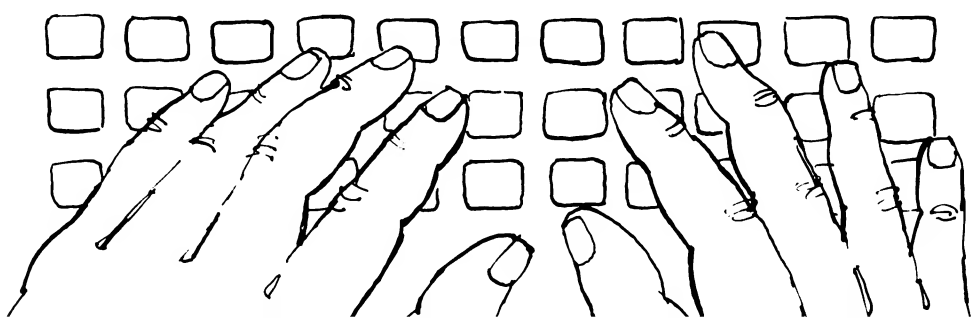
TI LOGO

```
TELL SPRITE 1
HOME
CARRY :ROCKET
SETCOLOR :RED
SETHEADING 0
SETSPEED 60
```

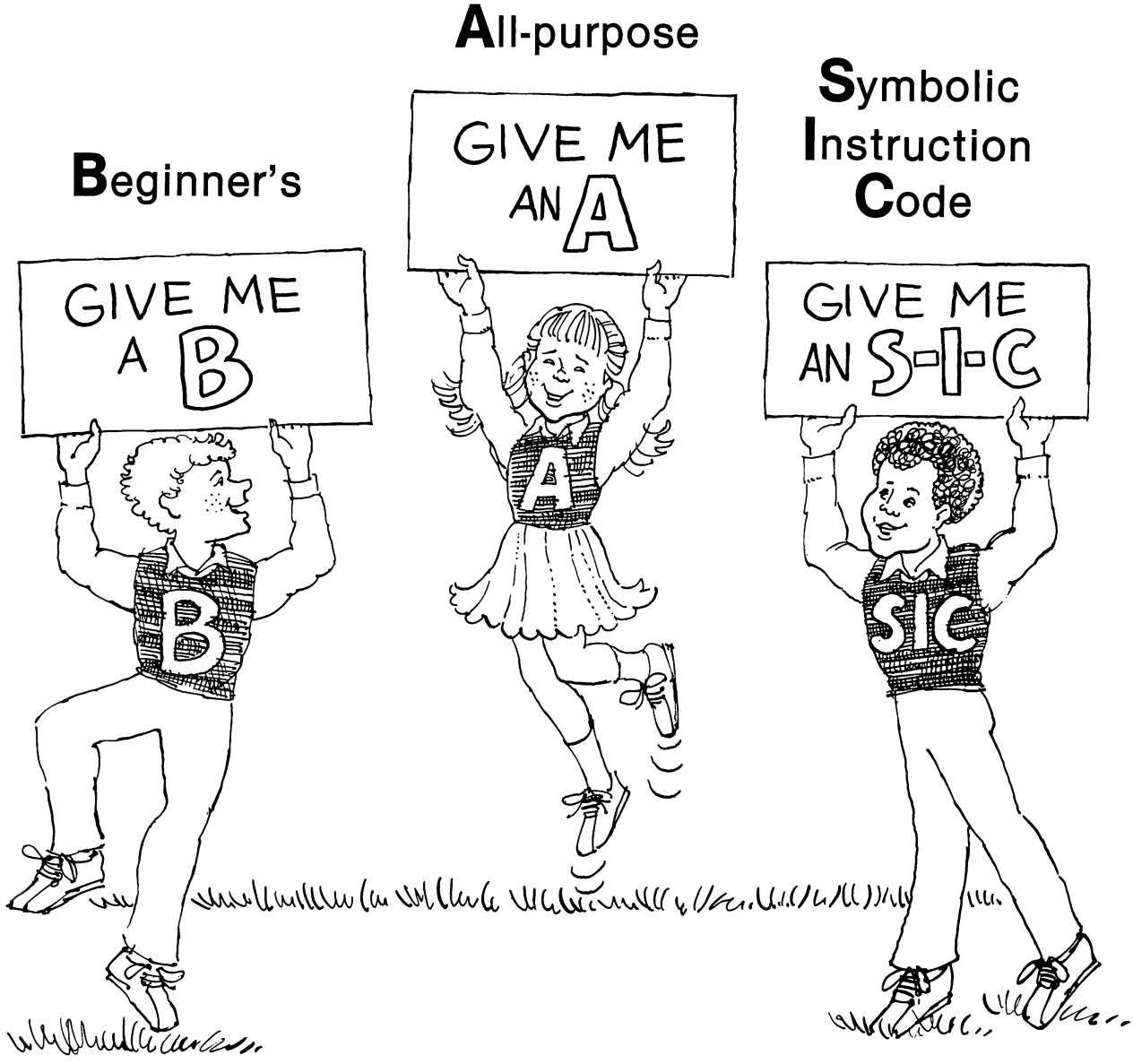
```
TELL SPRITE 2
HOME
CARRY :TRUCK
SETCOLOR :BLUE
SETHEADING 90
SETSPEED 30
```

TI BASIC

```
10 CALL CLEAR
20 FOR C=2 TO 16
30 CALL COLOR(C,C,C)
40 NEXT C
50 CHR=40
60 FOR X=8 TO 22
70 CALL VCHAR(4,X,CHR,15)
80 CALL HCHAR(X-4,8,CHR,15)
90 CHR=CHR+8
100 NEXT X
110 GOTO 50
RUN
```



TI BASIC INTRODUCTION



BASIC is • a widely-used computer language.
• easy-to-learn and use.
• a good place to start.

PRINT

PRINT statements can be used in a program to print on the screen any message you enclose in quotation marks.

```
10 PRINT "ARE YOU READY"
20 PRINT "TO LEARN BASIC?"
30 END
```

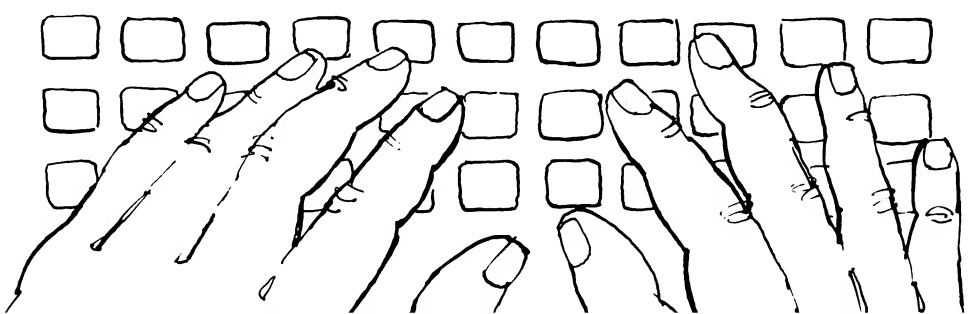
PRINT statements can also tell the computer to print numbers or the results of arithmetic problems.

```
PRINT 55
PRINT 50 + 5
```

Variable names can be used in PRINT statements. These names can represent either numbers or words.

```
LET A=10
PRINT A
```

```
LET B$="HELLO JOHN"
PRINT B$
```



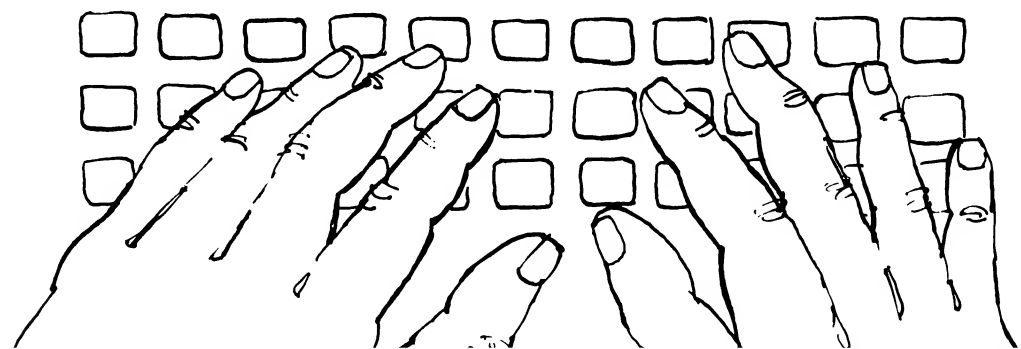
LET

The LET statement is used to give a variable name to a number or to a word or group of words.

For example, LET A = 10 gives the name A the value of 10. LET B$ = "HELLO" gives the name B$ to the word HELLO. You can then tell the computer to print 10 or HELLO on the screen by entering PRINT A or PRINT B$.

```
10 LET A=10
20 LET B=5
30 PRINT A+B
40 END
```

```
10 LET B$="HELLO"
20 LET C$="JOHN"
30 PRINT B$
40 PRINT C$
50 END
```



CALL SCREEN

The CALL SCREEN statement lets you change the display screen color while your program is running. When the program stops, the screen color returns to cyan (a light blue).

When you use the CALL SCREEN statement, you must tell the computer what color you want. The number you put in parentheses ( ) after CALL SCREEN can be anything from 1 through 16. Each of these numbers stands for a color.

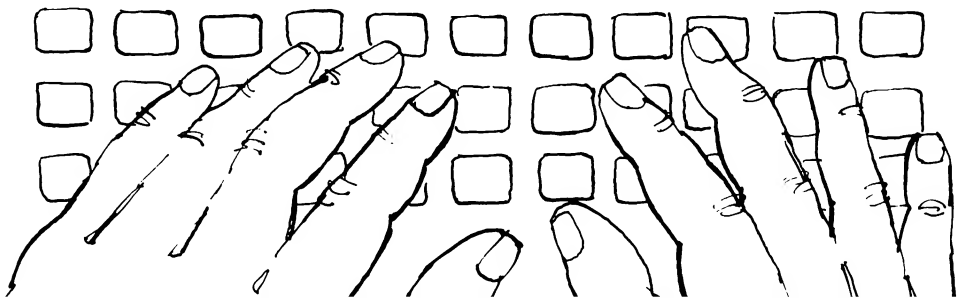
Number	Color	Number	Color
1	Transparent	9	Medium Red
2	Black	10	Light Red
3	Medium Green	11	Dark Yellow
4	Light Green	12	Light Yellow
5	Dark Blue	13	Dark Green
6	Light Blue	14	Magenta (Purple)
7	Dark Red	15	Gray
8	Cyan (a light blue)	16	White

A Sample Program

Here's a program you may want to try.

```
10 CALL CLEAR
20 CALL SCREEN(7)
30 FOR DELAY=1 TO 200
40 NEXT DELAY
50 CALL SCREEN(16)
60 FOR DELAY=1 TO 200
70 NEXT DELAY
80 CALL SCREEN(5)
90 FOR DELAY=1 TO 200
100 NEXT DELAY
110 END
```

Can you figure out what lines 30 and 40, 60 and 70, and 90 and 100 are doing in this program?



GO TO

The GO TO statement sends the program to the line number that follows the words GO TO. For example, the line

```
50 GO TO 30
```

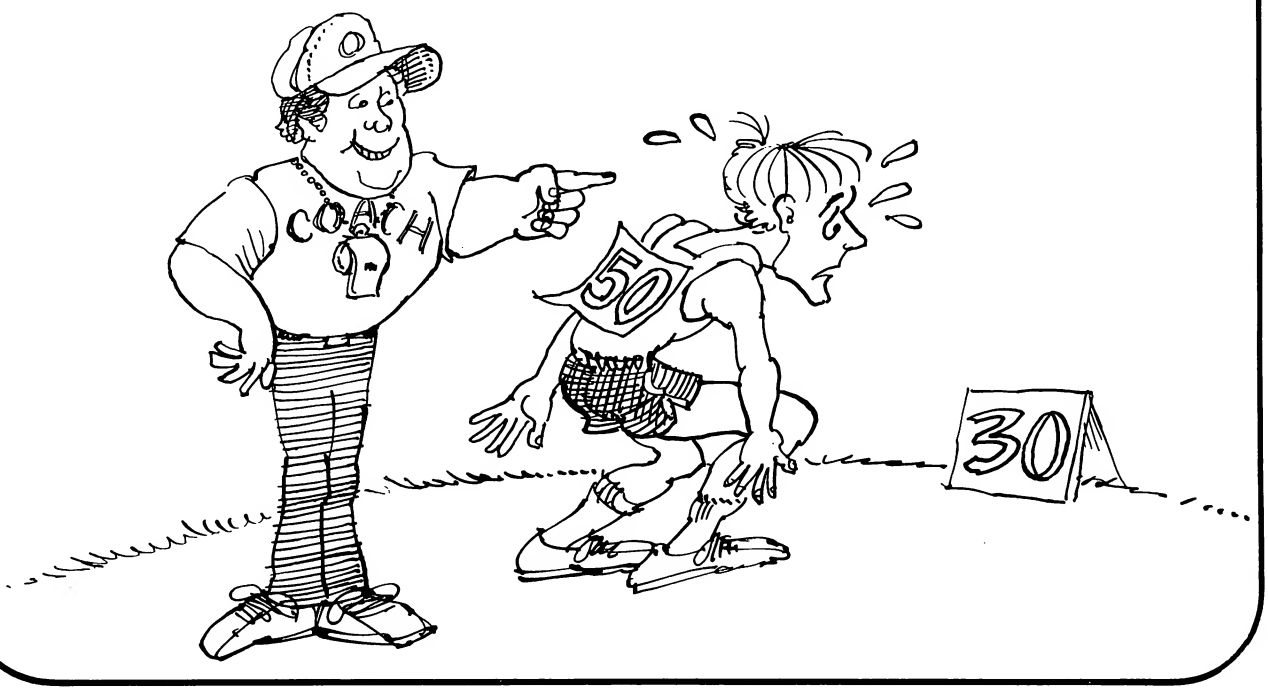
tells the computer to return to line 30 and start over. The GO TO statement is very useful in programs that use color or designs on the screen or programs in which you want to repeat certain statements over and over. Repeating program lines is called "looping."

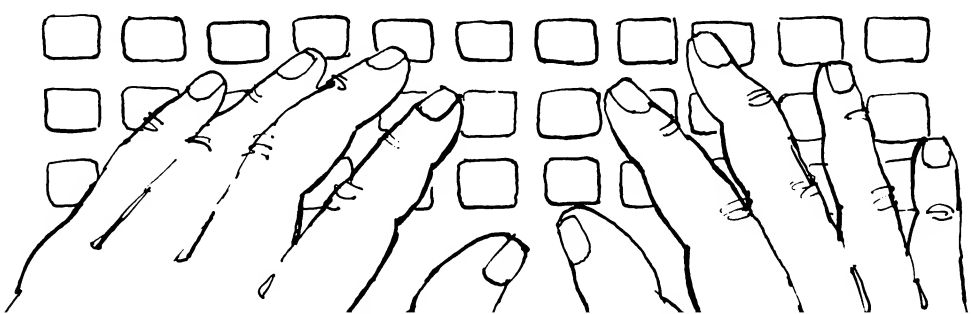
Here is an example you may want to try:

```
10 CALL CLEAR
20 CALL SCREEN(8)
30 LET A=A+1
40 PRINT A
50 PRINT
60 GO TO 30
```

Type RUN and press ENTER to see the program in action. Can you find what line 50 does?

When you are ready to stop the program, hold down the FCTN key and press the 4 key.





CALL HCHAR-CALL VCHAR

CALL HCHAR and CALL VCHAR are two statements that are used to position characters (letters, numbers, and symbols) on the screen. You can put either a single character or a line of characters on the screen.

If you are putting only one character on the screen, CALL HCHAR and CALL VCHAR work exactly alike. But if you are drawing a line of characters, they work very differently! CALL HCHAR puts a row of characters *across* the screen, and CALL VCHAR puts a column of characters *up and down* the screen.

Think of the screen as a "grid" of square blocks made up of 24 rows and 32 columns—sort of like a Tic-Tac-Toe grid, but much larger.

COLUMNS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

ROWS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

CALL HCHAR-CALL VCHAR

Every square on the grid is identified by two numbers—a row number and a column number. For example, if you counted down to the fifth row and then counted over to the seventh column, you'd be at screen position 5,7.

To use CALL HCHAR and CALL VCHAR, you must give the computer several bits of information: the row number, the column number, the character code number, and, if you are putting a line of characters on the screen, how many times you want the character repeated. For example,

```
CALL HCHAR(5,7,42,10)
```

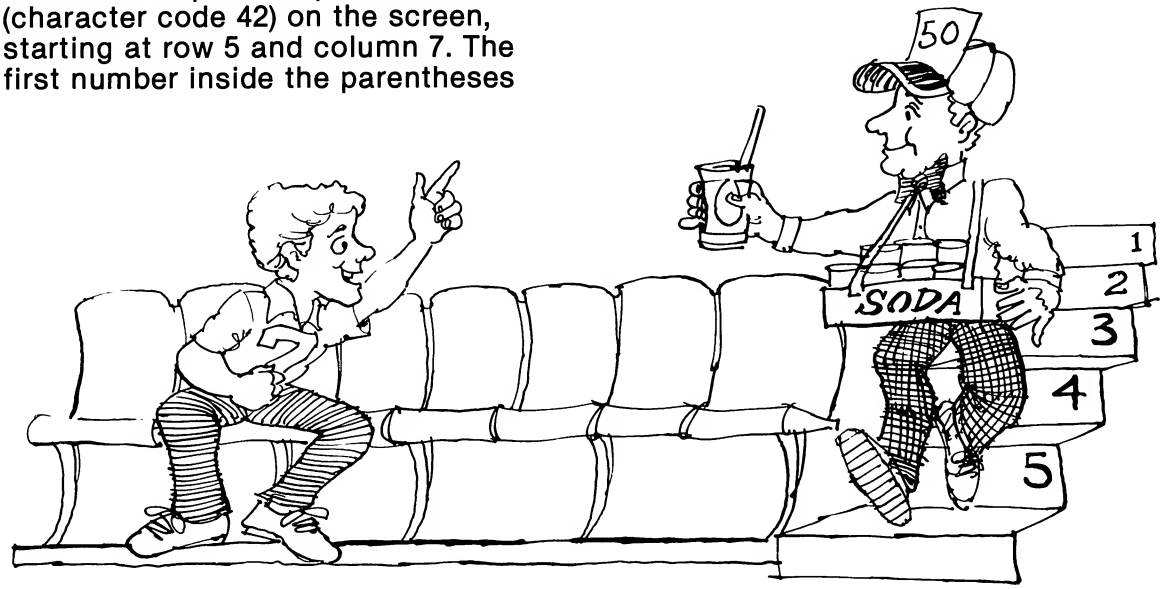
tells the computer to put 10 asterisks (character code 42) on the screen, starting at row 5 and column 7. The first number inside the parentheses gives the row number, the second number gives the column number, the third number is the special code for the character you want, and the last number tells the computer how many characters you want on the screen.

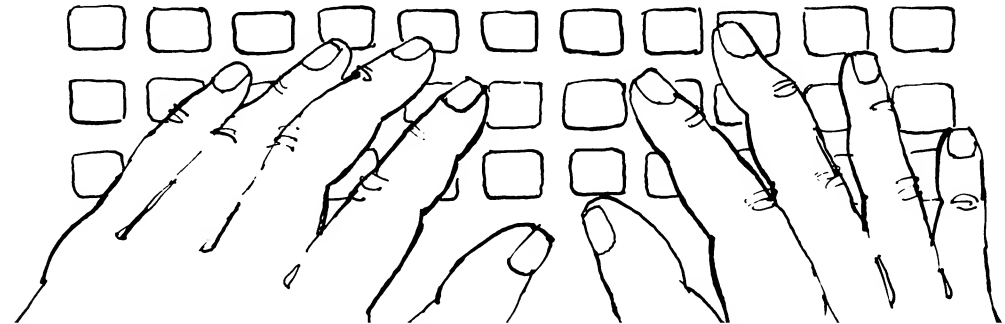
Here's a program for you to try. Enter these lines:

```
10 CALL CLEAR
20 CALL SCREEN(7)
30 CALL HCHAR(11,1,42,32)
40 CALL VCHAR(1,16,42,24)
50 GO TO 50
```

Type RUN and press ENTER to see the program work. When you want to stop it, hold down the FCTN key and press 4.

Can you think of other CALL HCHAR and CALL VCHAR lines to add to the program?





BASIC MATCH-UP

Read the definitions for the TI BASIC statements on the right side of the page. Choose the name of the statement that matches the definition. Write the correct name on the line.

PRINT	CALL SCREEN	CALL HCHAR
LET	GO TO	CALL VCHAR

_____ 1. Changes the color of a screen while the program is running.

_____ 2. Puts a row of characters across the screen.

_____ 3. Displays a message on the screen.

_____ 4. Sends the program to the line number that is in the instruction. Repeating a series of lines in a program, is called "looping."

_____ 5. Gives a variable name to a number, a word, or a group of words.

_____ 6. Puts a column of characters up and down the screen.

EXPLORE ON YOUR OWN

Here are some sample programs in TI BASIC. Here's all you do...

- Select TI BASIC from the selection screen.
- Type the programs one line at a time. Don't forget to leave the spaces. Press ENTER at the end of each line.
- When you finish typing, type RUN and press ENTER.

```
100 CALL CLEAR
110 FOR K=1 TO 16
120 CALL SCREEN(K)
130 FOR J=1 TO 500
140 NEXT J
150 NEXT K
160 END
```

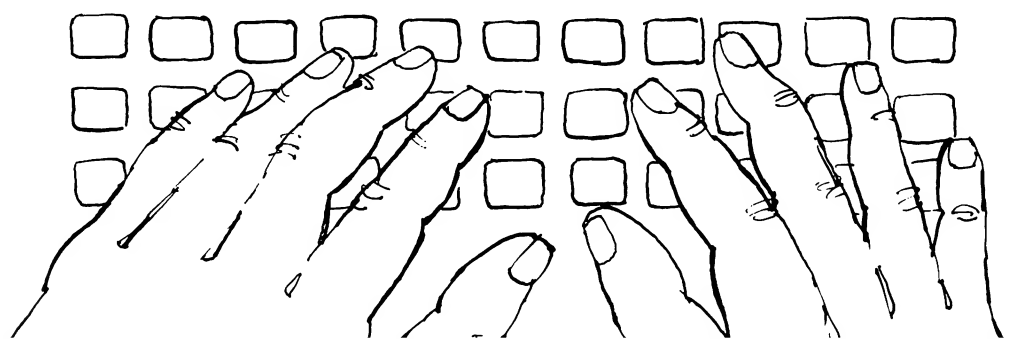
Take a flashy tour of the computer's colors.

```
10 CALL CLEAR
20 PRINT "WATCH ME COUNT"
30 FOR B=1 TO 20
40 PRINT B
50 NEXT B
60 END
```

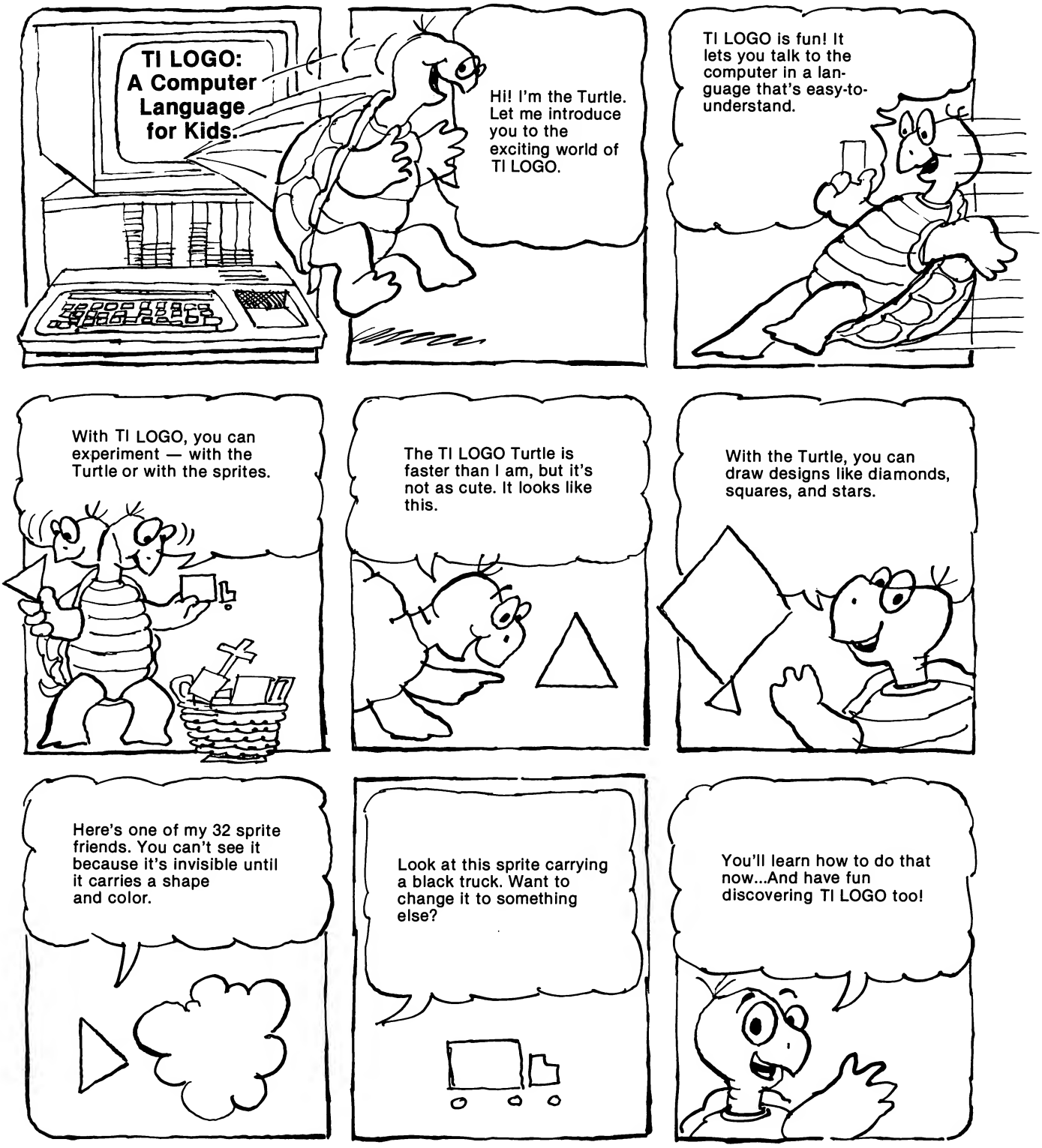
I can count! Watch me count to 20.

Need a fanfare? Use this program to make some music.

```
100 FOR B=1 TO 3
110 CALL SOUND(70,523,2,262,
2)
120 FOR A=1 TO 50
130 NEXT A
140 NEXT B
150 CALL SOUND(500,415,3,208,
10,831,1)
160 END
```



INTRODUCTION TO TI LOGO

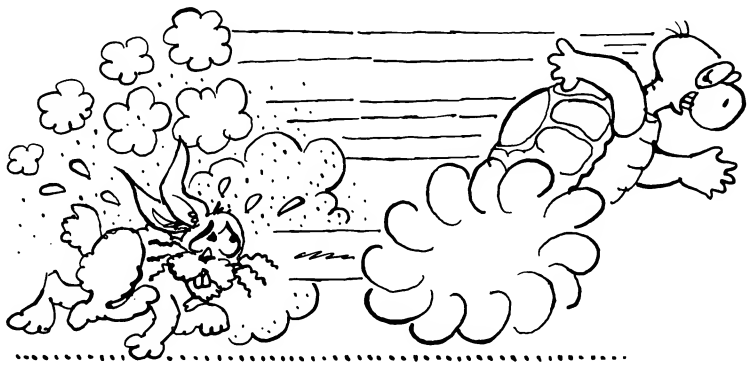


TURTLE COMMANDS

Most turtles are slow, but TI LOGO's Turtle can move fast if you know the right commands! See if you can match the Turtle commands to answer the questions. Place the number of the correct response in the box beside the Turtle command. The first one is done for you.

1. What command do you type when you don't want to see the Turtle in the design you are making?
2. What do you type when you hide the Turtle and want to see it again?
3. After using the command, PENUP, what command do you type to tell the Turtle to begin drawing?
4. What two commands do you type to make the Turtle turn?
5. What command do you type to turn the Turtle's pen into an eraser?
6. What command do you type if you want the Turtle to draw a line in reverse?
7. What command do you type when you want to move the Turtle somewhere without drawing a line?
8. What command do you type when you want to erase all lines the Turtle has drawn and everything you've typed?
9. What command do you type when you want the Turtle to listen to you?
10. What two commands do you type to tell the Turtle to move?

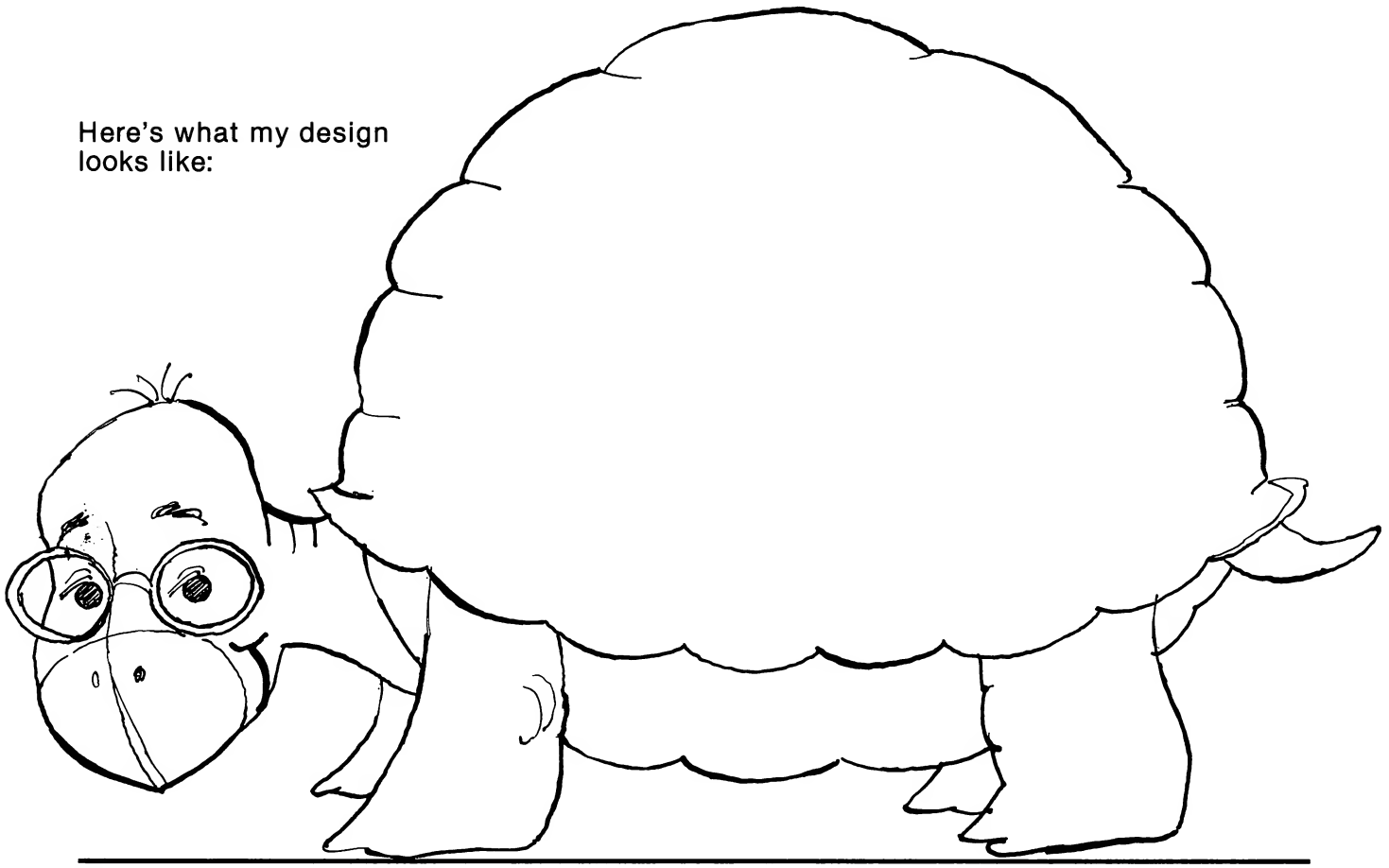
- ☐ TELL TURTLE
- ☐ RIGHT
- ☐ LEFT
- [1] HIDETURTLE
- ☐ SHOWTURTLE
- ☐ PENUP
- ☐ FORWARD
- ☐ PENDOWN
- ☐ PENERASE
- ☐ PENREVERSE
- ☐ CLEARSCREEN
- ☐ BACK



MY TURTLE DESIGN

Here are the steps I take to draw my design with the Turtle:

Here's what my design looks like:



TI LOGO SCRAMBLE

Can you unscramble these terms used in LOGO?

1. RUTTEL	11. DWPOENN
2. MOEH	12. DWAFROR
3. ACBK	13. NCLESCERERA
4. EDSSEPTE	14. TSPEIR
5. ENPVRREESE	15. GIRTH
6. TELF	16. PUPEN
7. YARCR	17. CROLSOTE
8. LNPEA	18. RUTTELSOWH
9. DHEANSTEIG	19. NEPRESAE
10. GOLO	20. KTROCE

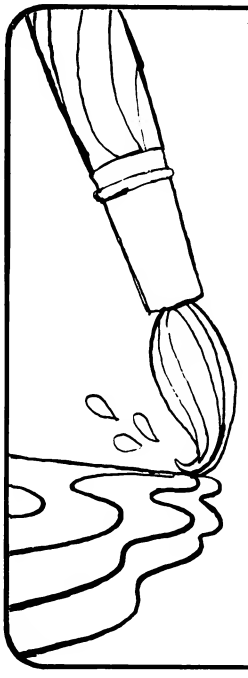
TURTLE
PENDOWN
HOME
FORWARD
BACK
CLEARSCREEN
SETSPEED
SPRITE
PENREVERSE
RIGHT

LEFT
PENUP
CARRY
SETCOLOR
PLANE
SHOWTURTLE
SETHEADING
PENERASE
LOGO
ROCKET

SPRITE COMMANDS

Here are sample sprite commands to refer to when you are telling a sprite or sprites what to do. Notice the boxes beside the SETCOLOR commands. These are for you to add the colors given in the commands. Don't forget to press ENTER after each command.

TELL SPRITE 1
HOME



☐ SETCOLOR :RED

☐ SETCOLOR :YELLOW

☐ SETCOLOR :BLUE

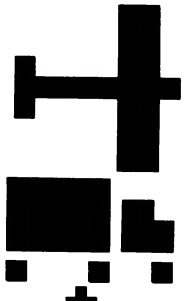
☐ SETCOLOR :ORANGE

☐ SETCOLOR :GREEN

☐ SETCOLOR :PURPLE

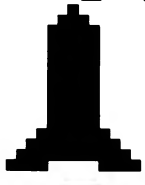
☐ SETCOLOR :BLACK

☐ SETCOLOR :WHITE



CARRY :PLANE

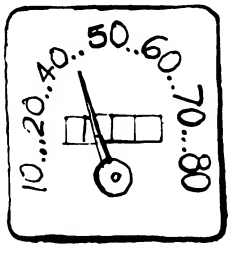
CARRY :TRUCK



CARRY :ROCKET

CARRY :BALL

CARRY :BOX



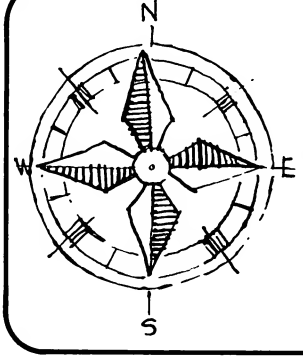
SETSPEED 1

SETSPEED 10

SETSPEED 50

SETSPEED 100

SETSPEED 0



SETHEADING :NORTH

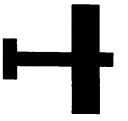
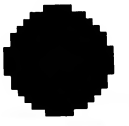
SETHEADING :EAST

SETHEADING :SOUTH

SETHEADING :WEST

SHAPE AND COLOR CHARTS

The following chart gives the number and shape of each of the five sprites defined by TI LOGO. To tell a sprite or a list of sprites to CARRY a shape, you can use either the word or the number. When you use the word, type (:) dots directly before the word. When you use the number, do not type the (:) dots.

Number	Shape	Design
1	PLANE	
2	TRUCK	
3	ROCKET	
4	BALL	
5	BOX	

The following chart lists the 16 colors and their numbers. To tell a sprite or a list of sprites to SETCOLOR, you can use either the word or the number. When you use the word, type (:) dots. When you use the number, do not type the (:) dots.

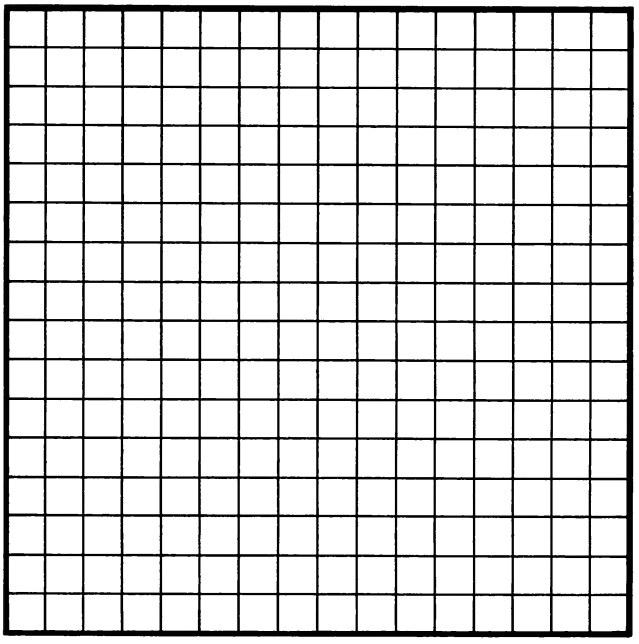
Color	Number	Color	Number
CLEAR	0	RUST	8
BLACK	1	ORANGE	9
GREEN	2	YELLOW	10
LIME	3	LEMON	11
BLUE	4	OLIVE	12
SKY	5	PURPLE	13
RED	6	GRAY	14
CYAN	7	WHITE	15

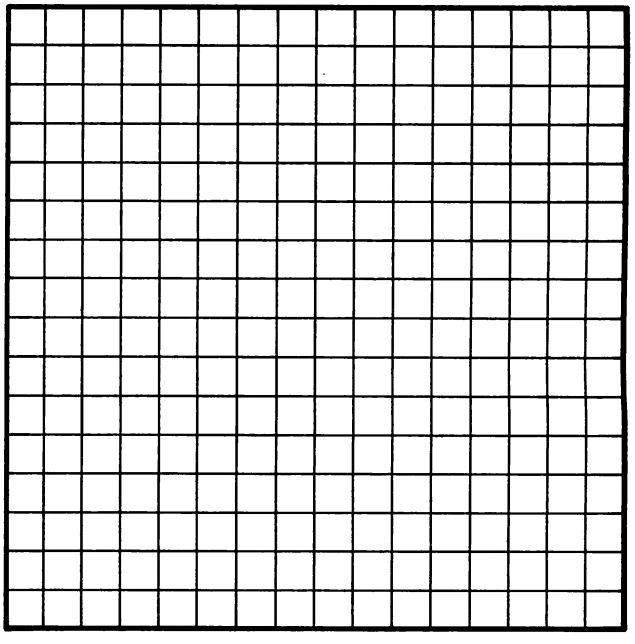
MAKESHAPE COMMAND

With the MAKESHAPE COMMAND you can design shapes for one or more sprites to carry!

There are 26, 16x16 grids, like the two grids below, on which you can draw designs. The grids are numbered 0 through 25. Grids 1 through 5 are the shapes already designed in TI LOGO: a plane, a truck, a rocket, a ball, and a box.

Use the grids below to design two shapes of your own. Color in the squares to make the designs you would like. Beside each grid is a blank for you to write the number of the grid you use when you work on the computer.

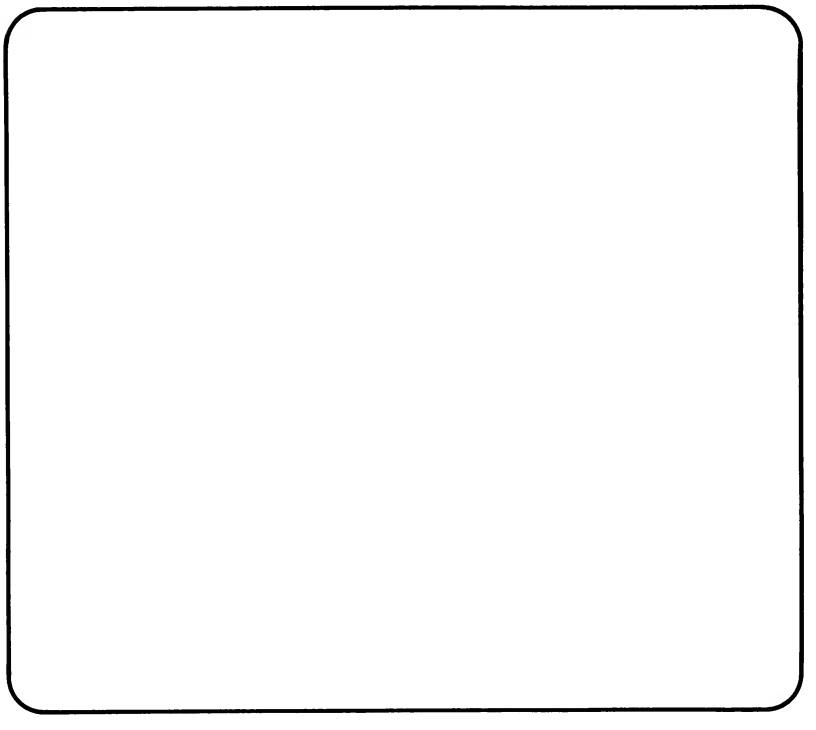




MY SPRITE PROCEDURE

Here's my sprite procedure:

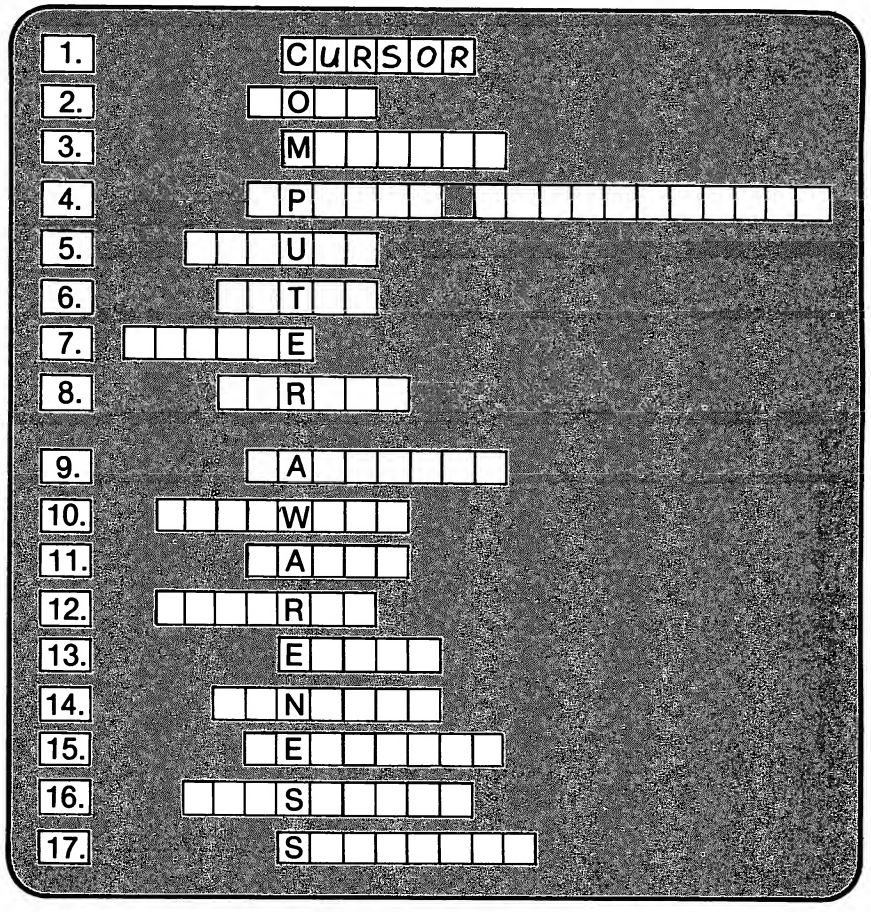
And here's what my design looks like:



COMPUTER AWARENESS

INSTRUCTIONS:

Look at the definitions. Select the word or words on the list that fit the puzzle spaces. The first one is done for you.



1. A flashing rectangle on the screen.
2. A computer language for kids.
3. A television-like screen.
4. An accessory that makes the computer talk.
5. Contains a program like a game or educational activity that you plug into the computer.
6. The key that tells the computer to do whatever you told it to.
7. An invisible thing that can carry a ball, truck, plane, rocket, or any other shape you design in TI LOGO.
8. The triangle on the screen in TI LOGO.
9. A device used to store a program.
10. All the equipment of a computer system.
11. The computer language built into the TI-99/4A.
12. A list of instructions for the computer to perform.
13. The key that erases what you've typed.
14. The device that contains the computer and keyboard.
15. The part of the computer that looks like a typewriter.
16. Wired Remote Controllers.
17. The programs that tell the computer what to do.

List of Terms

speech synthesizer	LOGO	keyboard	enter	sprite	module
	software	BASIC	monitor	program	joysticks
hardware	turtle	erase	console	cursor	cassette

COMPUTER DICTIONARY

Cassette:

A cassette is the same as a tape cassette that is used to record music. The computer uses it to store programs and other information.

Central Processing Unit (CPU):

The "brains" of the computer. The CPU directs all of the information flowing through the computer and controls all the parts of the computer.

Command:

A word or pair of words that tells the computer to do something in the Immediate Mode. Examples: NEW, LIST, RUN, CALL CLEAR.

Command Module:

A program that you plug in the computer.

Console:

The main part of the computer. It has the keyboard and the "brains" of the computer in it.

CPU:

See "Central Processing Unit"

Cursor:

A flashing rectangle or underline on the screen that shows you where the characters you type will be displayed.

Diskette:

A device that looks like a record in a square cover. The computer stores programs and information on it.

Display Screen:

The television-like device on which the computer shows you the work you tell it to do. This is also called the *monitor.*

ENTER key:

The key that tells the computer to "hear" the command or statement you have typed.

COMPUTER DICTIONARY

Hardware:

All the equipment that makes up a computer system. The console, monitor, and Speech Synthesizer are all examples of hardware.

Immediate Mode:

The way the computer operates when you enter a command or statement *without a line number*: the computer does it immediately.

Input:

Information that is being sent TO the computer. For example, when you type on the keyboard, you are giving input to the computer.

Joysticks:

See "Wired Remote Controllers."

Line Number:

A number that you type before a statement in a program. The line numbers tell the computer the order in which to follow the instructions.

Memory:

The part of the computer system where programs and other information are stored.

Module:

See "Command Module."

Monitor:

A device that displays information on its screen. A monitor looks like a television, but cannot receive TV programs.

Output:

Information that is being sent FROM the computer. For example, when pictures are displayed on the screen, or when a report is printed, you are seeing computer output.

Program:

A list of instructions that tells the computer how to do something.

COMPUTER DICTIONARY

Programming Language:

A group of instructions that a computer understands. You "talk" to the computer by entering commands and statements in its language.

Software:

The programs that tell the computer what to do.

Speech Synthesizer:

A special accessory that allows the computer to talk.

Sprite:

In TI LOGO, an invisible character that you can give shape, color, speed, screen position, and direction.

Statement:

A "sentence" in a computer program that instructs the computer to do something.

TI BASIC:

The programming language built into the TI-99/4A Home Computer.

TI LOGO:

Programming language that the TI-99/4A Home Computer can understand. It comes as a plug-in Command Module.

Turtle:

In TI LOGO, the small triangle which lets you draw designs on the screen.

Wired Remote Controllers:

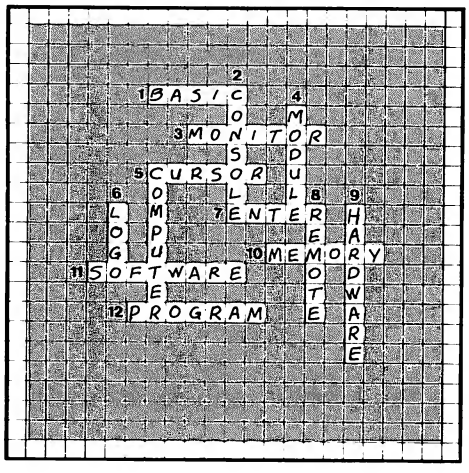
Small controls, sometimes called "joysticks," that you can hold in your hand. You can use joysticks to move items around on the screen.

ANSWERS

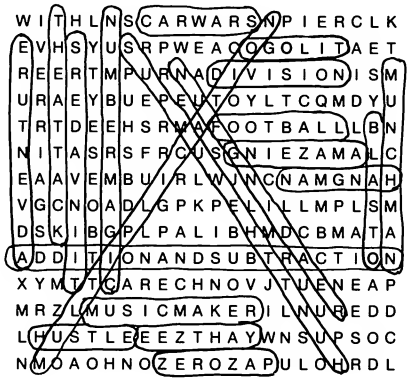
Page 5 — COMPUTER MATCH UP

1. f	3. h	5. d	7. e	9. c
2. a	4. g	6. b	8. i	

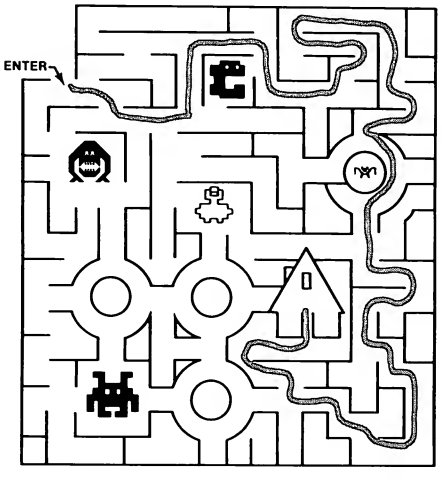
Page 10 — COMPUTER CROSSWORD



Page 14 — MODULE SEARCH



Page 15 — A-MAZE-ING



Page 24 — BASIC MATCH UP

1. CALL SCREEN	4. GO TO
2. CALL HCHAR	5. LET
3. PRINT	6. CALL VCHAR

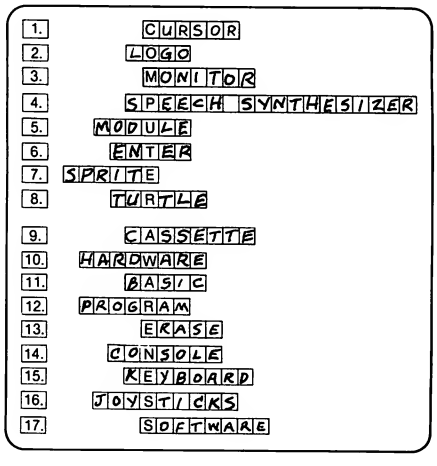
Page 27 — TURTLE COMMANDS

9 TELL TURTLE
4 RIGHT
4 LEFT
1 HIDETURTLE
2 SHOWTURTLE
7 PENUP
10 FORWARD
3 PENDOWN
5 PENERASE
6 PENREVERSE
8 CLEARSCREEN
10 BACK

Page 29 — LOGO SCRAMBLE

1. Turtle	11. Pendown
2. Home	12. Forward
3. Back	13. Clearscreen
4. Setspeed	14. Sprite
5. Penreverse	15. Right
6. Left	16. Penup
7. Carry	17. Setcolor
8. Plane	18. Showturtle
9. Setheading	19. Penerase
10. Logo	20. Rocket

Page 34 — COMPUTER AWARENESS



NOTES

APPLICATION PROGRAMS

A wide range of programs have been developed for the TI Home Computer. These programs are available in three different easy-to-use formats. The first type is the *Solid State Software*™ Command Module which plugs into the TI computer console. The other types of programs are offered on cassettes and diskettes. Although many of these programs have been created by Texas Instruments, there are also many programs that have been written by independent developers. The following is a current list of the Command Modules that are offered by Texas Instruments for its home computer.

Home Management/Personal Finance

Home Financial Decisions
Household Budget Management
Securities Analysis
Personal Record Keeping
Personal Real Estate
Personal Report Generator
TI Writer†
Multiplan***†

Education/Personal Enrichment

Early Learning Fun
Beginning Grammar
Early Reading
Reading Fun
Reading Roundup
Scholastic Spelling—Level 3
Scholastic Spelling—Level 4
Scholastic Spelling—Level 5
Scholastic Spelling—Level 6
Addition and Subtraction 1
Addition and Subtraction 2
Multiplication 2
Division 1
TI LOGO
TI Touch Typing Tutor†
Number Magic
TI LOGO II‡
Addison-Wesley Math Games II†
Addison-Wesley Math Games VI†
Scott Foresman Reading Rally†
Scott Foresman Reading Flight†
Milliken Addition‡
Milliken Subtraction‡
Milliken Multiplication‡
Milliken Division‡
Milliken Integer‡
Milliken Fractions‡
Milliken Decimals‡
Milliken Percents‡

Entertainment

Football
Video Games I
Hunt the Wumpus
Indoor Soccer
Mind Challengers
A-Maze-Ing
The Attack*
Blasto*
Blackjack and Poker
Hustle*
ZeroZap*
Hangman*
Connect Four*
Yahtzee*
Adventure
Tombstone City: 21st Century
Car Wars
Munch Man
Tunnels of Doom
TI Invaders
Parsec‡
Chisholm‡
Alpiner‡
Othello**‡
Video Graphs
Video Chess
Music Maker
Physical Fitness
Weight Control and Nutrition

Other Application Programs

Diagnostic
Speech Editor
Statistics
Extended BASIC
Terminal Emulator II
Editor/Assembler
Mini Memory
Disk Manager

Additional Programs

Other programs that are not listed are available on cassettes and diskettes from Texas Instruments and independent developers.

*trademark of Milton Bradley Company
**trademark of Gabriel Industries
***trademark of Microsoft, Inc.

†available 3rd Quarter
‡available 4th Quarter

Texas Instruments

TI 99/4A HOME COMPUTER

The TI Home Computer

This compact, lightweight console contains the brain of the TI-99/4A Home Computer — a powerful TMS 9900 microprocessor.

The Video Monitor

Our 10″ color monitor gives you excellent color resolution (192 x 256 dot density) and a display format for 24 lines of 32 characters.

The Peripheral Expansion System

Lets you start simple, then gradually build up a sophisticated system by plugging in additional hardware cards. It centralizes most of your hardware in one place, eliminating extra cables and clutter. Accommodates the Disk Memory System, RS232 Interface, Memory Expansion option, and more.

The Speech Synthesizer

Reproduces human speech electronically — and accurately. Plugs directly into the Home Computer's built-in connectors without external cables. Lets the computer communicate verbally, and is ideal for children too young to read the screen. Requires Speech Editor, Terminal Emulator II or other customized Command Modules that use speech (sold separately). The Terminal Emulator II package provides text-to-speech capability whereby you can listen to data-base information or have the computer say anything within your own program.

Command Modules

You don't have to know how to program to use the TI Home Computer. By choosing from a large library of pre-programmed cassettes, diskettes, and TI's exclusive *Solid State Software*™ modules, your whole family can enjoy computing: either learning, keeping household records, or challenging the TI Home Computer to stimulating games.

Telephone Coupler (Modem)

Allows you to send and receive messages, data, and entire programs through a standard telephone. Lets you communicate with similarly equipped computers at remote locations, and access data bases and software services. Uses the RS232 Interface and Terminal Emulator II packages.

Wired Remote Controllers

Lets you move objects on the screen. Each unit includes an eight-position remote control with side-mounted action button. An important accessory every serious game-player should have.

The Disk Memory System

Stores additional information that you wish to keep and refer to at a later time. It consists of the TI Disk Drive Controller and from one to three Disk Memory Drives. Handles variable length records, as well as sequential and relative files. Free disk space is automatically reassigned for file allocation.

Comes with a pre-programmed Command Module that supplies disk utilities and file maintenance commands. Up to 90K bytes of information may be stored on each diskette.

Cassette Cables

Connects the Home Computer to a cassette recorder.

TEXAS INSTRUMENTS
INCORPORATED

Printed in the U.S.A. Dallas, Texas CL 713A